

10/585296

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1

SEQUENCE LISTING

<110> Kabushiki Kaisha Hayashibara Seibutsu Kagaku Kenkyujo

Tadanori Mayumi

Yasuo Tsutsumi

Shinsaku Nakagawa

<120> TNF antagonist and TNF inhibitor containing it as an effective ingredient

<130> WO1042

<160> 90

<210> 1

<211> 157

<212> PRT

<213> human

<400>

Val	Arg	Ser	Ser	Ser	Arg	Thr	Pro	Ser	Asp	Lys	Pro	Val	Ala	His	Val
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			20					25					30		
Ala	Asn	Ala	Leu	Leu	Ala	Asn	Gly	Val	Glu	Leu	Arg	Asp	Asn	Gln	Leu
		35					40					45			
Val	Val	Pro	Ser	Glu	Gly	Leu	Tyr	Leu	Ile	Tyr	Ser	Gln	Val	Leu	Phe
	50					55					60				
Lys	Gly	Gln	Gly	Cys	Pro	Ser	Thr	His	Val	Leu	Leu	Thr	His	Thr	Ile
65				70					75					80	
Ser	Arg	Ile	Ala	Val	Ser	Tyr	Gln	Thr	Lys	Val	Asn	Leu	Leu	Ser	Ala
			85						90					95	
Ile	Lys	Ser	Pro	Cys	Gln	Arg	Glu	Thr	Pro	Glu	Gly	Ala	Glu	Ala	Lys
			100					105					110		
Pro	Trp	Tyr	Glu	Pro	Ile	Tyr	Leu	Gly	Gly	Val	Phe	Gln	Leu	Glu	Lys
		115					120					125			
Gly	Asp	Arg	Leu	Ser	Ala	Glu	Ile	Asn	Arg	Pro	Asp	Tyr	Leu	Asp	Phe
	130					135					140				
Ala	Glu	Ser	Gly	Gln	Val	Tyr	Phe	Gly	Ile	Ile	Ala	Leu			
145					150				155						

<210> 2

<211> 471

<212> DNA

<213> Artificial Sequence

<400> 2

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Val	Arg	Ser	Ser	Ser	Arg	Thr	Pro	Ser	Asp	Met	Pro	Val	Ala	His	Val	
1				5					10					15		

gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
 Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
 20 25 30
 gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
 Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
 35 40 45
 gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
 Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
 50 55 60
 tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
 Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
 65 70 75 80
 agc cgc atc gcc gtc tcc tac cag acc ccc gtc aac ctc ctc tct gcc 288
 Ser Arg Ile Ala Val Ser Tyr Gln Thr Pro Val Asn Leu Leu Ser Ala
 85 90 95
 atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
 Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
 100 105 110
 ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
 Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
 115 120 125
 ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
 Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
 130 135 140
 gcc gag tct ggg cag gtc tac ttt ggg atc att gcc ctg
 Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
 145 150 155

<210> 3

<211> 471

<212> DNA

<213> Artificial Sequence

<400> 3

gtc aga tca tct tct cga acc ccg agt gac gcg cct gta gcc cat gtt 48
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 1 5 10 15
 gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
 Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
 20 25 30
 gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
 Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
 35 40 45
 gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
 Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
 50 55 60
 tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240

Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
 65 70 75 80
 agc cgc atc gcc gtc tcc tac cag acc cgg gtc aac ctc ctc tct gcc 288
 Ser Arg Ile Ala Val Ser Tyr Gln Thr Arg Val Asn Leu Leu Ser Ala
 85 90 95
 atc gcc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc ctc 336
 Ile Ala Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Leu
 100 105 110
 ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag acc 384
 Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Thr
 115 120 125
 ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
 Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
 130 135 140
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 145 150 155

<210> 4

<211> 471

<212> DNA

<213> Artificial Sequence

<400> 4

gtc aga tca tct tct oga acc ccg agt gac ggc cct gta gcc cat gtt 48
 Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Ala Pro Val Ala His Val
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 gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
 Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
 20 25 30
 gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
 Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
 35 40 45
 gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
 Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
 50 55 60
 tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
 Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
 65 70 75 80
 agc cgc atc gcc gtc tcc tac cag acc gac gtc aac ctc ctc tct gcc 288
 Ser Arg Ile Ala Val Ser Tyr Gln Thr Pro Val Asn Leu Leu Ser Ala
 85 90 95
 atc gcc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc ctc 336
 Ile Ala Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Leu
 100 105 110
 ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag acc 384
 Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Thr

115 120 125
 ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
 Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
 130 135 140
 gcc gag tct ggg cag gtc tac ttt ggg atc att gcc ctg
 Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
 145 150 155

<210> 5
 <211> 157
 <212> PRT
 <213> Artificial Sequence

<400> 5
 Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
 1 5 10 15
 Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Xaa Asn Xaa Xaa
 20 25 30
 Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
 35 40 45
 Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
 50 55 60
 Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
 65 70 75 80
 Ser Arg Ile Ala Val Ser Tyr Gln Thr Pro Val Asn Leu Leu Ser Ala
 85 90 95
 Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
 100 105 110
 Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
 115 120 125
 Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
 130 135 140
 Xaa Xaa Xaa Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
 145 150 155

<210> 6
 <211> 471
 <212> DNA
 <213> Artificial Sequence

<400> 6
 gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
 Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
 1 5 10 15
 gta gca aac cct caa gct gag ggg cag ctc cag tgg nns aac nns nns 96
 Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Xaa Asn Xaa Xaa

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                20                25                30
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
                35                40                45
gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
                50                55                60
tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
                65                70                75                80
agc cgc atc gcc gtc tcc tac cag acc ccc gtc aac ctc ctc tct gcc 288
Ser Arg Ile Ala Val Ser Tyr Gln Thr Pro Val Asn Leu Leu Ser Ala
                85                90                95
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
                100                105                110
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
                115                120                125
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
                130                135                140
nns nns nns ggg cag gtc tac ttt ggg atc att gcc ctg
Xaa Xaa Xaa Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
145                150                155

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<210> 7

<211> 157

<212> PRT

<213> Artificial Sequence

<400> 7

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Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
1                5                10                15
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
                20                25                30
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
                35                40                45
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
                50                55                60
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
                65                70                75                80
Ser Arg Ile Xaa Xaa Xaa Xaa Xaa Xaa Pro Val Asn Leu Leu Ser Ala
                85                90                95
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
                100                105                110
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro

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	115		120		125										
Gly	Asp	Arg	Leu	Ser	Ala	Glu	Ile	Asn	Arg	Pro	Asp	Tyr	Leu	Asp	Phe
	130					135					140				
Ala	Glu	Ser	Gly	Gln	Val	Tyr	Phe	Gly	Ile	Ile	Ala	Leu			
145					150						155				

<210> 8

<211> 471

<212> DNA

<213> Artificial Sequence

<400> 8

gta	aga	tca	tct	tct	cga	acc	ccg	agt	gac	atg	cct	gta	gcc	cat	gtt	48
Val	Arg	Ser	Ser	Ser	Arg	Thr	Pro	Ser	Asp	Met	Pro	Val	Ala	His	Val	
1				5				10				15				
gta	gca	aac	cct	caa	gct	gag	ggg	cag	ctc	cag	tgg	ctg	aac	cgc	cgg	96
Val	Ala	Asn	Pro	Gln	Ala	Glu	Gly	Gln	Leu	Gln	Trp	Leu	Asn	Arg	Arg	
			20				25					30				
gcc	aat	gcc	ctc	ctg	gcc	aat	ggc	gtg	gag	ctg	aga	gat	aac	cag	ctg	144
Ala	Asn	Ala	Leu	Leu	Ala	Asn	Gly	Val	Glu	Leu	Arg	Asp	Asn	Gln	Leu	
		35					40				45					
gtg	gtg	cca	tca	gag	ggc	ctg	tac	ctc	atc	tac	tcc	cag	gtc	ctc	ttc	192
Val	Val	Pro	Ser	Glu	Gly	Leu	Tyr	Leu	Ile	Tyr	Ser	Gln	Val	Leu	Phe	
	50					55				60						
tgc	ggc	caa	ggc	tgc	ccc	tcc	acc	cat	gtg	ctc	ctc	acc	cac	acc	atc	240
Ser	Gly	Gln	Gly	Cys	Pro	Ser	Thr	His	Val	Leu	Leu	Thr	His	Thr	Ile	
65				70					75					80		
agc	cgc	atc	nns	nns	nns	nns	nns	nns	ccc	gtc	aac	ctc	ctc	tct	gcc	288
Ser	Arg	Ile	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Pro	Val	Asn	Leu	Leu	Ser	Ala	
			85						90				95			
atc	cgc	agc	ccc	tgc	cag	agg	gag	acc	cca	gag	ggg	gct	gag	gcc	aac	336
Ile	Arg	Ser	Pro	Cys	Gln	Arg	Glu	Thr	Pro	Glu	Gly	Ala	Glu	Ala	Asn	
			100				105					110				
ccc	tgg	tat	gag	ccc	atc	tat	ctg	gga	ggg	gtc	ttc	cag	ctg	gag	ccg	384
Pro	Trp	Tyr	Glu	Pro	Ile	Tyr	Leu	Gly	Gly	Val	Phe	Gln	Leu	Glu	Pro	
			115				120					125				
ggt	gac	cga	ctc	agc	gct	gag	atc	aat	cgg	ccc	gac	tat	ctc	gac	ttt	432
Gly	Asp	Arg	Leu	Ser	Ala	Glu	Ile	Asn	Arg	Pro	Asp	Tyr	Leu	Asp	Phe	
	130					135					140					
gcc	gag	tct	ggg	cag	gtc	tac	ttt	ggg	atc	att	gcc	ctg				
Ala	Glu	Ser	Gly	Gln	Val	Tyr	Phe	Gly	Ile	Ile	Ala	Leu				
145					150						155					

<210> 9

<211> 157

<212> PRT

<213> Artificial Sequence

<220>

<223> Clone No. 5

<400> 9

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Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
 1           5           10           15
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Arg Asn Ser His
           20           25           30
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
           35           40           45
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
           50           55           60
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
           65           70           75           80
Ser Arg Ile Ala Val Ser Tyr Gln Thr Pro Val Asn Leu Leu Ser Ala
           85           90           95
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
           100           105           110
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
           115           120           125
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
           130           135           140
Ser Gly Thr Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
           145           150           155

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<210> 10

<211> 146

<212> PRT

<213> Artificial Sequence

<220>

<223> Clone No. 6

<400> 10

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Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
 1           5           10           15
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Ser Asn Arg Tyr
           20           25           30
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
           35           40           45
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
           50           55           60
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
           65           70           75           80
Ser Arg Ile Ala Val Ser Tyr Gln Thr Pro Val Asn Leu Leu Ser Ala

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				85					90					95			
Ile	Arg	Ser	Pro	Cys	Gln	Arg	Glu	Thr	Pro	Glu	Gly	Ala	Glu	Ala	Asn		
			100					105					110				
Pro	Trp	Tyr	Glu	Pro	Ile	Tyr	Leu	Gly	Gly	Val	Phe	Gln	Leu	Glu	Pro		
		115					120					125					
Gly	Asp	Arg	Leu	Ser	Ala	Glu	Ile	Asn	Arg	Pro	Asp	Tyr	Leu	Asp	Phe		
	130					135					140						
Ser	Met																
145																	

<210> 11
 <211> 157
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Clone No. 7

Val	Arg	Ser	Ser	Ser	Arg	Thr	Pro	Ser	Asp	Met	Pro	Val	Ala	His	Val		
1				5					10					15			
Val	Ala	Asn	Pro	Gln	Ala	Glu	Gly	Gln	Leu	Gln	Trp	His	Asn	Asn	Thr		
		20					25					30					
Ala	Asn	Ala	Leu	Leu	Ala	Asn	Gly	Val	Glu	Leu	Arg	Asp	Asn	Gln	Leu		
	35					40					45						
Val	Val	Pro	Ser	Glu	Gly	Leu	Tyr	Leu	Ile	Tyr	Ser	Gln	Val	Leu	Phe		
	50					55					60						
Ser	Gly	Gln	Gly	Cys	Pro	Ser	Thr	His	Val	Leu	Leu	Thr	His	Thr	Ile		
	65			70					75					80			
Ser	Arg	Ile	Ala	Val	Ser	Tyr	Gln	Thr	Pro	Val	Asn	Leu	Leu	Ser	Ala		
			85						90					95			
Ile	Arg	Ser	Pro	Cys	Gln	Arg	Glu	Thr	Pro	Glu	Gly	Ala	Glu	Ala	Asn		
		100						105					110				
Pro	Trp	Tyr	Glu	Pro	Ile	Tyr	Leu	Gly	Gly	Val	Phe	Gln	Leu	Glu	Pro		
	115						120					125					
Gly	Asp	Arg	Leu	Ser	Ala	Glu	Ile	Asn	Arg	Pro	Asp	Tyr	Leu	Asp	Phe		
	130					135					140						
Asp	Ser	Asn	Gly	Gln	Val	Tyr	Phe	Gly	Ile	Ile	Ala	Leu					
145					150					155							

<210> 12
 <211> 157
 <212> PRT
 <213> Artificial Sequence

<220>

<223> Clone No. 8

<400> 12

Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
 1 5 10 15
 Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Arg Asn Glu His
 20 25 30
 Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
 35 40 45
 Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
 50 55 60
 Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
 65 70 75 80
 Ser Arg Ile Ala Val Ser Tyr Gln Thr Pro Val Asn Leu Leu Ser Ala
 85 90 95
 Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
 100 105 110
 Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
 115 120 125
 Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
 130 135 140
 Asn Asn Ala Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
 145 150 155

<210> 13

<211> 157

<212> PRT

<213> Artificial Sequence

<220>

<223> Clone No. 9

<400> 13

Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
 1 5 10 15
 Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Ser Asn Pro Met
 20 25 30
 Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
 35 40 45
 Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
 50 55 60
 Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
 65 70 75 80
 Ser Arg Ile Ala Val Ser Tyr*Gln Thr Pro Val Asn Leu Leu Ser Ala
 85 90 95
 Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
 100 105 110

Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
 115 120 125
 Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
 130 135 140
 Ala Asn Pro Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
 145 150 155

<210> 14
 <211> 157
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Clone No. 10

<400> 14
 Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
 1 5 10 15
 Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
 20 25 30
 Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
 35 40 45
 Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
 50 55 60
 Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
 65 70 75 80
 Ser Arg Ile Ala Val Ser Tyr Gln Thr Pro Val Asn Leu Leu Ser Ala
 85 90 95
 Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
 100 105 110
 Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
 115 120 125
 Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
 130 135 140
 Lys Asp Thr Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
 145 150 155

<210> 15
 <211> 157
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Clone No. 11

<400> 15

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Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
 1           5           10           15
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
          20           25           30
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
          35           40           45
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
          50           55           60
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
          65           70           75           80
Ser Arg Ile Ala Val Ser Tyr Gln Thr Pro Val Asn Leu Leu Ser Ala
          85           90           95
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
          100          105          110
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
          115          120          125
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
          130          135          140
Arg Thr Asp Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
          145          150          155

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<210> 16

<211> 157

<212> PRT

<213> Artificial Sequence

<220>

<223> Clone No. 12

<400> 16

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Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
 1           5           10           15
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
          20           25           30
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
          35           40           45
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
          50           55           60
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
          65           70           75           80
Ser Arg Ile Ala Val Ser Tyr Gln Thr Pro Val Asn Leu Leu Ser Ala
          85           90           95
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
          100          105          110
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
          115          120          125
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe

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130 135 140
 Arg Glu Thr Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
 145 150 155

<210> 17
 <211> 157
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Clone No. 13

<400> 17
 Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
 1 5 10 15
 Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
 20 25 30
 Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
 35 40 45
 Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
 50 55 60
 Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
 65 70 75 80
 Ser Arg Ile Ala Val Ser Tyr Gln Thr Pro Val Asn Leu Leu Ser Ala
 85 90 95
 Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
 100 105 110
 Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
 115 120 125
 Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
 130 135 140
 Ala Asp Asp Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
 145 150 155

<210> 18
 <211> 157
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Clone No. 14

<400> 18
 Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
 1 5 10 15
 Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg

		20						25					30				
Ala	Asn	Ala	Leu	Leu	Ala	Asn	Gly	Val	Glu	Leu	Arg	Asp	Asn	Gln	Leu		
		35					40					45					
Val	Val	Pro	Ser	Glu	Gly	Leu	Tyr	Leu	Ile	Tyr	Ser	Gln	Val	Leu	Phe		
		50				55					60						
Ser	Gly	Gln	Gly	Cys	Pro	Ser	Thr	His	Val	Leu	Leu	Thr	His	Thr	Ile		
65					70					75					80		
Ser	Arg	Ile	Ala	Val	Ser	Tyr	Gln	Thr	Pro	Val	Asn	Leu	Leu	Ser	Ala		
			85						90					95			
Ile	Arg	Ser	Pro	Cys	Gln	Arg	Glu	Thr	Pro	Glu	Gly	Ala	Glu	Ala	Asn		
		100					105					110					
Pro	Trp	Tyr	Glu	Pro	Ile	Tyr	Leu	Gly	Gly	Val	Phe	Gln	Leu	Glu	Pro		
		115					120					125					
Gly	Asp	Arg	Leu	Ser	Ala	Glu	Ile	Asn	Arg	Pro	Asp	Tyr	Leu	Asp	Phe		
	130					135				140							
Ala	Asn	Asp	Gly	Gln	Val	Tyr	Phe	Gly	Ile	Ile	Ala	Leu					
145					150					155							

<210> 19

<211> 157

<212> PRT

<213> Artificial Sequence

<220>

<223> Clone No. 35

<400> 19

Val	Arg	Ser	Ser	Ser	Arg	Thr	Pro	Ser	Asp	Met	Pro	Val	Ala	His	Val		
1				5					10					15			
Val	Ala	Asn	Pro	Gln	Ala	Glu	Gly	Gln	Leu	Gln	Trp	Leu	Asn	Arg	Arg		
			20				25				30						
Ala	Asn	Ala	Leu	Leu	Ala	Asn	Gly	Val	Glu	Leu	Arg	Asp	Asn	Gln	Leu		
		35					40				45						
Val	Val	Pro	Ser	Glu	Gly	Leu	Tyr	Leu	Ile	Tyr	Ser	Gln	Val	Leu	Phe		
		50				55					60						
Ser	Gly	Gln	Gly	Cys	Pro	Ser	Thr	His	Val	Leu	Leu	Thr	His	Thr	Ile		
65					70					75					80		
Ser	Arg	Ile	Thr	Pro	Ala	Ile	Asn	Arg	Pro	Val	Asn	Leu	Leu	Ser	Ala		
			85						90					95			
Ile	Arg	Ser	Pro	Cys	Gln	Arg	Glu	Thr	Pro	Glu	Gly	Ala	Glu	Ala	Asn		
		100					105					110					
Pro	Trp	Tyr	Glu	Pro	Ile	Tyr	Leu	Gly	Gly	Val	Phe	Gln	Leu	Glu	Pro		
		115					120					125					
Gly	Asp	Arg	Leu	Ser	Ala	Glu	Ile	Asn	Arg	Pro	Asp	Tyr	Leu	Asp	Phe		
	130					135				140							
Ala	Glu	Ser	Gly	Gln	Val	Tyr	Phe	Gly	Ile	Ile	Ala	Leu					
145					150					155							

<210> 20
 <211> 157
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Clone No. 36

<400> 20
 Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
 1 5 10 15
 Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
 20 25 30
 Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
 35 40 45
 Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
 50 55 60
 Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
 65 70 75 80
 Ser Arg Ile Ala Pro Gly Tyr Ser His Pro Val Asn Leu Leu Ser Ala
 85 90 95
 Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
 100 105 110
 Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
 115 120 125
 Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
 130 135 140
 Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
 145 150 155

<210> 21
 <211> 157
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Clone No. 37

<400> 21
 Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
 1 5 10 15
 Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
 20 25 30
 Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
 35 40 45

Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
 50 55 60
 Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
 65 70 75 80
 Ser Arg Ile Ser Thr Thr His Asn Gln Pro Val Asn Leu Leu Ser Ala
 85 90 95
 Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
 100 105 110
 Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
 115 120 125
 Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
 130 135 140
 Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
 145 150 155

<210> 22

<211> 157

<212> PRT

<213> Artificial Sequence

<220>

<223> Clone No. 38

<400> 22

Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
 1 5 10 15
 Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
 20 25 30
 Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
 35 40 45
 Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
 50 55 60
 Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
 65 70 75 80
 Ser Arg Ile Gly Gly Pro Tyr Gln Arg Pro Val Asn Leu Leu Ser Ala
 85 90 95
 Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
 100 105 110
 Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
 115 120 125
 Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
 130 135 140
 Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
 145 150 155

<210> 23

<211> 471
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Clone No. 5

<400> 23

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gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
  1           5           10           15
gta gca aac cct caa gct gag ggg cag ctc cag tgg agg aac tcg cac 96
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Arg Asn Ser His
          20           25           30
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
          35           40           45
gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
          50           55           60
tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
          65           70           75           80
agc cgc atc gcc gtc tcc tac cag acc ccc gtc aac ctc ctc tct gcc 288
Ser Arg Ile Ala Val Ser Tyr Gln Thr Pro Val Asn Leu Leu Ser Ala
          85           90           95
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
          100           105           110
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
          115           120           125
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
          130           135           140
tcg ggc acc ggg cag gtc tac ttt ggg atc att gcc ctg
Ser Gly Thr Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
          145           150           155

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<210> 24
 <211> 441
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Clone No. 6

<400> 24

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gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
  1           5           10          15
gta gca aac cct caa gct gag ggg cag ctc cag tgg tcg aac cgg tac 96
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Ser Asn Arg Tyr
          20           25           30
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
          35           40           45
gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
          50           55           60
tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
          65           70           75           80
agc cgc atc gcc gtc tcc tac cag acc ccc gtc aac ctc ctc tct gcc 288
Ser Arg Ile Ala Val Ser Tyr Gln Thr Pro Val Asn Leu Leu Ser Ala
          85           90           95
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
          100          105          110
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
          115          120          125
ggg gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
          130          135          140
tcc atg tag
Ser Met
145

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<210> 25

<211> 471

<212> DNA

<213> Artificial Sequence

<220>

<223> Clone No. 7

<400> 25

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gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
  1           5           10          15
gta gca aac cct caa gct gag ggg cag ctc cag tgg cac aac aac acg 96
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp His Asn Asn Thr
          20           25           30

```

```

gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
      35              40              45
gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
      50              55              60
tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
      65              70              75              80
agc cgc atc gcc gtc tcc tac cag acc ccc gtc aac ctc ctc tct gcc 288
Ser Arg Ile Ala Val Ser Tyr Gln Thr Pro Val Asn Leu Leu Ser Ala
      85              90              95
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
      100             105             110
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
      115             120             125
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
      130             135             140
gac tcc aac ggg cag gtc tac ttt ggg atc att gcc ctg
Asp Ser Asn Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
145              150              155

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<210> 26
 <211> 471
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Clone No. 8

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<400> 26
gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
      1              5              10              15
gta gca aac cct caa gct gag ggg cag ctc cag tgg cgc aac gag cac 96
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Arg Asn Glu His
      20              25              30
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
      35              40              45
gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
      50              55              60
tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240

```

Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
 65 70 75 80
 agc cgc atc gcc gtc tcc tac cag acc ccc gtc aac ctc ctc tct gcc 288
 Ser Arg Ile Ala Val Ser Tyr Gln Thr Pro Val Asn Leu Leu Ser Ala
 85 90 95
 atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
 Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
 100 105 110
 ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
 Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
 115 120 125
 ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
 Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
 130 135 140
 aac aac gcg ggg cag gtc tac ttt ggg atc att gcc ctg
 Asn Asn Ala Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
 145 150 155

<210> 27

<211> 471

<212> DNA

<213> Artificial Sequence

<220>

<223> Clone No. 9

<400> 27

gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
 Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
 1 5 10 15
 gta gca aac cct caa gct gag ggg cag ctc cag tgg agc aac ccc atg 96
 Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Ser Asn Pro Met
 20 25 30
 gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
 Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
 35 40 45
 gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
 Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
 50 55 60
 tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
 Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
 65 70 75 80
 agc cgc atc gcc gtc tcc tac cag acc ccc gtc aac ctc ctc tct gcc 288
 Ser Arg Ile Ala Val Ser Tyr Gln Thr Pro Val Asn Leu Leu Ser Ala
 85 90 95
 atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
 Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn

```

      100      105      110
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
      115      120      125
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
      130      135      140
gcc aac ccc ggg cag gtc tac ttt ggg atc att gcc ctg
Ala Asn Pro Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
145      150      155

```

<210> 28

<211> 471

<212> DNA

<213> Artificial Sequence

<220>

<223> Clone No. 10

<400> 28

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gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
      1      5      10      15
gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
      20      25      30
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
      35      40      45
gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
      50      55      60
tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
      65      70      75      80
agc cgc atc gcc gtc tcc tac cag acc ccc gtc aac ctc ctc tct gcc 288
Ser Arg Ile Ala Val Ser Tyr Gln Thr Pro Val Asn Leu Leu Ser Ala
      85      90      95
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
      100      105      110
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
      115      120      125
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
      130      135      140

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aag gac acg ggg cag gtc tac ttt ggg atc att gcc ctg
 Lys Asp Thr Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
 145 150 155

<210> 29

<211> 471

<212> DNA

<213> Artificial Sequence

<220>

<223> Clone No. 11

<400> 29

gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
 Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
 1 5 10 15
 gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
 Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
 20 25 30
 gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
 Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
 35 40 45
 gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
 Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
 50 55 60
 tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
 Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
 65 70 75 80
 agc cgc atc gcc gtc tcc tac cag acc ccc gtc aac ctc ctc tct gcc 288
 Ser Arg Ile Ala Val Ser Tyr Gln Thr Pro Val Asn Leu Leu Ser Ala
 85 90 95
 atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
 Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
 100 105 110
 ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
 Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
 115 120 125
 ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
 Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
 130 135 140
 cgg acg gac ggg cag gtc tac ttt ggg atc att gcc ctg
 Arg Thr Asp Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
 145 150 155

<210> 30

<211> 471

<212> DNA

<213> Artificial Sequence

<220>

<223> Clone No. 12

<400> 30

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gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
  1           5           10          15
gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
          20          25          30
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
          35          40          45
gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
          50          55          60
tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
          65          70          75          80
agc cgc atc gcc gtc tcc tac cag acc ccc gtc aac ctc ctc tct gcc 288
Ser Arg Ile Ala Val Ser Tyr Gln Thr Pro Val Asn Leu Leu Ser Ala
          85          90          95
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
          100          105          110
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
          115          120          125
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
          130          135          140
agg gag acg ggg cag gtc tac ttt ggg atc att gcc ctg
Arg Glu Thr Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
145          150          155

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<210> 31

<211> 471

<212> DNA

<213> Artificial Sequence

<220>

<223> Clone No. 13

<400> 31

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gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
1      5      10      15
gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
20      25      30
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
35      40      45
gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
50      55      60
tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
65      70      75      80
agc cgc atc gcc gtc tcc tac cag acc ccc gtc aac ctc ctc tct gcc 288
Ser Arg Ile Ala Val Ser Tyr Gln Thr Pro Val Asn Leu Leu Ser Ala
85      90      95
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
100      105      110
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
115      120      125
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
130      135      140
gcc gac gac ggg cag gtc tac ttt ggg atc att gcc ctg
Ala Asp Asp Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
145      150      155

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<210> 32

<211> 471

<212> DNA

<213> Artificial Sequence

<220>

<223> Clone No. 14

<400> 32

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gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
1      5      10      15
gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
20      25      30
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144

```

Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
 35 40 45
 gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
 Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
 50 55 60
 tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
 Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
 65 70 75 80
 agc cgc atc gcc gtc tcc tac cag acc ccc gtc aac ctc ctc tct gcc 288
 Ser Arg Ile Ala Val Ser Tyr Gln Thr Pro Val Asn Leu Leu Ser Ala
 85 90 95
 atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
 Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
 100 105 110
 ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
 Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
 115 120 125
 ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
 Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
 130 135 140
 gcc aac gac ggg cag gtc tac ttt ggg atc att gcc ctg
 Ala Asn Asp Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
 145 150 155

<210> 33

<211> 471

<212> DNA

<213> Artificial Sequence

<220>

<223> Clone No. 35

<400> 33

gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
 Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
 1 5 10 15
 gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
 Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
 20 25 30
 gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
 Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
 35 40 45
 gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
 Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
 50 55 60
 tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
 Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile


```

65          70          75          80
agc cgc atc acc ccc gcc atc aac cgg ccc gtc aac ctc ctc tct gcc 288
Ser Arg Ile Thr Pro Ala Ile Asn Arg Pro Val Asn Leu Leu Ser Ala
          85          90          95
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
          100         105         110
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
          115         120         125
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
          130         135         140
gcc gag tct ggg cag gtc tac ttt ggg atc att gcc ctg
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
          145         150         155

```

<210> 34
 <211> 471
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Clone No. 36

```

<400> 34
gtc aga tca tct tct cga acc cgg agt gac atg cct gta gcc cat gtt 48
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
   1           5           10          15
gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
          20          25          30
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
          35          40          45
gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
          50          55          60
tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
          65          70          75          80
agc cgc atc gcg ccc gcc tac tcc cac ccc gtc aac ctc ctc tct gcc 288
Ser Arg Ile Ala Pro Gly Tyr Ser His Pro Val Asn Leu Leu Ser Ala
          85          90          95
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
          100         105         110

```

```

ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp-Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
      115              120              125
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
      130              135              140
gcc gag tct ggg cag gtc tac ttt ggg atc att gcc ctg
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
145              150              155

```

<210> 35

<211> 471

<212> DNA

<213> Artificial Sequence

<220>

<223> Clone No. 37

<400> 35

```

gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
      1              5              10              15
gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
      20              25              30
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
      35              40              45
gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
      50              55              60
tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
      65              70              75              80
agc cgc atc agc acc acc cac aac cag ccc gtc aac ctc ctc tct gcc 288
Ser Arg Ile Ser Thr Thr His Asn Gln Pro Val Asn Leu Leu Ser Ala
      85              90              95
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
      100              105              110
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
      115              120              125
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
      130              135              140
gcc gag tct ggg cag gtc tac ttt ggg atc att gcc ctg

```

Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
 145 150 155

<210> 36

<211> 471

<212> DNA

<213> Artificial Sequence

<220>

<223> Clone No. 38

<400> 36

```

gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
  1           5           10           15
gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
          20           25           30
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
          35           40           45
gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
          50           55           60
tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
          65           70           75           80
agc cgc atc ggc ggc ccg tac cag cgg ccc gtc aac ctc ctc tct gcc 288
Ser Arg Ile Gly Gly Pro Tyr Gln Arg Pro Val Asn Leu Leu Ser Ala
          85           90           95
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
          100          105          110
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
          115          120          125
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
          130          135          140
gcc gag tct ggg cag gtc tac ttt ggg atc att gcc ctg
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
145 150 155

```

<210> 37

<211> 157

<212> PRT

<213> Artificial Sequence

<220>

<223> Clone No. 1

<400> 37

```

Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
 1           5           10           15
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Gln Asn Arg Trp
          20           25           30
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
          35           40           45
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
          50           55           60
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
          65           70           75           80
Ser Arg Ile Ala Val Ser Tyr Gln Thr Pro Val Asn Leu Leu Ser Ala
          85           90           95
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
          100          105          110
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
          115          120          125
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
          130          135          140
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
145          150          155

```

<210> 38

<211> 157

<212> PRT

<213> Artificial Sequence

<220>

<223> Clone No. 2

<400> 38

```

Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
 1           5           10           15
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Thr Asn Gly Tyr
          20           25           30
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
          35           40           45
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
          50           55           60
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
          65           70           75           80
Ser Arg Ile Ala Val Ser Tyr Gln Thr Pro Val Asn Leu Leu Ser Ala
          85           90           95
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn

```

```

          100          105          110
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
          115          120          125
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
          130          135          140
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
145          150          155

```

<210> 39
 <211> 157
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Clone No. 3

```

<400> 39
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
  1          5          10          15
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Ser Asp
          20          25          30
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
          35          40          45
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
          50          55          60
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
          65          70          75          80
Ser Arg Ile Ala Val Ser Tyr Gln Thr Pro Val Asn Leu Leu Ser Ala
          85          90          95
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
          100          105          110
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
          115          120          125
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
          130          135          140
Ala Ala Arg Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
145          150          155

```

<210> 40
 <211> 157
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Clone No. 4

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<400> 40
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val

```

1	5	10	15												
Val	Ala	Asn	Pro	Gln	Ala	Glu	Gly	Gln	Leu	Gln	Trp	Lys	Asn	Ala	Gly
	20		25		30										
Ala	Asn	Ala	Leu	Leu	Ala	Asn	Gly	Val	Glu	Leu	Arg	Asp	Asn	Gln	Leu
	35		40		45										
Val	Val	Pro	Ser	Glu	Gly	Leu	Tyr	Leu	Ile	Tyr	Ser	Gln	Val	Leu	Phe
	50		55		60										
Ser	Gly	Gln	Gly	Cys	Pro	Ser	Thr	His	Val	Leu	Leu	Thr	His	Thr	Ile
	65		70		75										80
Ser	Arg	Ile	Ala	Val	Ser	Tyr	Gln	Thr	Pro	Val	Asn	Leu	Leu	Ser	Ala
		85			90										95
Ile	Arg	Ser	Pro	Cys	Gln	Arg	Glu	Thr	Pro	Glu	Gly	Ala	Glu	Ala	Asn
	100		105		110										
Pro	Trp	Tyr	Glu	Pro	Ile	Tyr	Leu	Gly	Gly	Val	Phe	Gln	Leu	Glu	Pro
	115		120		125										
Gly	Asp	Arg	Leu	Ser	Ala	Glu	Ile	Asn	Arg	Pro	Asp	Tyr	Leu	Asp	Phe
	130		135		140										
Ala	Ser	Thr	Gly	Gln	Val	Tyr	Phe	Gly	Ile	Ile	Ala	Leu			
145		150		155											

<210> 41

<211> 157

<212> PRT

<213> Artificial Sequence

<220>

<223> Clone No. 16

<400> 41

Val	Arg	Ser	Ser	Ser	Arg	Thr	Pro	Ser	Asp	Met	Pro	Val	Ala	His	Val
1		5		10		15									
Val	Ala	Asn	Pro	Gln	Ala	Glu	Gly	Gln	Leu	Gln	Trp	Leu	Asn	Arg	Arg
	20		25		30										
Ala	Asn	Ala	Leu	Leu	Ala	Asn	Gly	Val	Glu	Leu	Arg	Asp	Asn	Gln	Leu
	35		40		45										
Val	Val	Pro	Ser	Glu	Gly	Leu	Tyr	Leu	Ile	Tyr	Ser	Gln	Val	Leu	Phe
	50		55		60										
Ser	Gly	Gln	Gly	Cys	Pro	Ser	Thr	His	Val	Leu	Leu	Thr	His	Thr	Ile
	65		70		75										80
Ser	Arg	Ile	Ser	Ser	Thr	Tyr	Pro	Asp	Pro	Val	Asn	Leu	Leu	Ser	Ala
		85			90										95
Ile	Arg	Ser	Pro	Cys	Gln	Arg	Glu	Thr	Pro	Glu	Gly	Ala	Glu	Ala	Asn
	100		105		110										
Pro	Trp	Tyr	Glu	Pro	Ile	Tyr	Leu	Gly	Gly	Val	Phe	Gln	Leu	Glu	Pro
	115		120		125										
Gly	Asp	Arg	Leu	Ser	Ala	Glu	Ile	Asn	Arg	Pro	Asp	Tyr	Leu	Asp	Phe
	130		135		140										
Ala	Glu	Ser	Gly	Gln	Val	Tyr	Phe	Gly	Ile	Ile	Ala	Leu			

145

150

155

<210> 42

<211> 157

<212> PRT

<213> Artificial Sequence

<220>

<223> Clone No. 17

<400> 42

Val	Arg	Ser	Ser	Ser	Arg	Thr	Pro	Ser	Asp	Met	Pro	Val	Ala	His	Val
1				5					10					15	
Val	Ala	Asn	Pro	Gln	Ala	Glu	Gly	Gln	Leu	Gln	Trp	Leu	Asn	Arg	Arg
		20					25						30		
Ala	Asn	Ala	Leu	Leu	Ala	Asn	Gly	Val	Glu	Leu	Arg	Asp	Asn	Gln	Leu
	35					40					45				
Val	Val	Pro	Ser	Glu	Gly	Leu	Tyr	Leu	Ile	Tyr	Ser	Gln	Val	Leu	Phe
	50					55					60				
Ser	Gly	Gln	Gly	Cys	Pro	Ser	Thr	His	Val	Leu	Leu	Thr	His	Thr	Ile
	65				70				75					80	
Ser	Arg	Ile	Ser	Lys	Thr	Tyr	Thr	His	Pro	Val	Asn	Leu	Leu	Ser	Ala
			85						90					95	
Ile	Arg	Ser	Pro	Cys	Gln	Arg	Glu	Thr	Pro	Glu	Gly	Ala	Glu	Ala	Asn
		100					105						110		
Pro	Trp	Tyr	Glu	Pro	Ile	Tyr	Leu	Gly	Gly	Val	Phe	Gln	Leu	Glu	Pro
	115					120						125			
Gly	Asp	Arg	Leu	Ser	Ala	Glu	Ile	Asn	Arg	Pro	Asp	Tyr	Leu	Asp	Phe
	130					135					140				
Ala	Glu	Ser	Gly	Gln	Val	Tyr	Phe	Gly	Ile	Ile	Ala	Leu			
145					150						155				

<210> 43

<211> 157

<212> PRT

<213> Artificial Sequence

<220>

<223> Clone No. 18

<400> 43

Val	Arg	Ser	Ser	Ser	Arg	Thr	Pro	Ser	Asp	Met	Pro	Val	Ala	His	Val
1				5					10					15	
Val	Ala	Asn	Pro	Gln	Ala	Glu	Gly	Gln	Leu	Gln	Trp	Leu	Asn	Arg	Arg
		20					25						30		
Ala	Asn	Ala	Leu	Leu	Ala	Asn	Gly	Val	Glu	Leu	Arg	Asp	Asn	Gln	Leu
	35					40					45				
Val	Val	Pro	Ser	Glu	Gly	Leu	Tyr	Leu	Ile	Tyr	Ser	Gln	Val	Leu	Phe

50		55		60
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile				
65		70		75
Ser Arg Ile Ser Pro Leu Tyr Pro Lys Pro Val Asn Leu Leu Ser Ala				80
	85		90	95
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn				
	100		105	110
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro				
	115		120	125
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe				
	130		135	140
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu				
145		150		155

<210> 44

<211> 157

<212> PRT

<213> Artificial Sequence

<220>

<223> Clone No. 19

<400> 44

Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val				
1		5		10
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg				15
	20		25	30
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu				
	35		40	45
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe				
	50		55	60
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile				
65		70		75
Ser Arg Ile Ser Tyr Asn Tyr Asn Gly Pro Val Asn Leu Leu Ser Ala				80
	85		90	95
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn				
	100		105	110
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro				
	115		120	125
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe				
	130		135	140
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu				
145		150		155

<210> 45

<211> 157

<212> PRT

<213> Artificial Sequence

<220>

<223> Clone No.20

<400> 45

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Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
 1           5           10           15
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
          20           25           30
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
          35           40           45
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
          50           55           60
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
          65           70           75           80
Ser Arg Ile Ser Ser Ala Tyr Ala Ser Pro Val Asn Leu Leu Ser Ala
          85           90           95
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
          100          105          110
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
          115          120          125
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
          130          135          140
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
          145          150          155

```

<210> 46

<211> 157

<212> PRT

<213> Artificial Sequence

<220>

<223> Clone No.21

<400> 46

```

Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
 1           5           10           15
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
          20           25           30
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
          35           40           45
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
          50           55           60
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
          65           70           75           80
Ser Arg Ile Thr Ser Ala Tyr Gly Pro Pro Val Asn Leu Leu Ser Ala
          85           90           95
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn

```

100 105 110
 Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
 115 120 125
 Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
 130 135 140
 Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
 145 150 155

<210> 47
 <211> 157
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Clone No. 22

<400> 47
 Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
 1 5 10 15
 Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
 20 25 30
 Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
 35 40 45
 Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
 50 55 60
 Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
 65 70 75 80
 Ser Arg Ile Ser Arg Val Tyr Thr Ala Pro Val Asn Leu Leu Ser Ala
 85 90 95
 Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
 100 105 110
 Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
 115 120 125
 Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
 130 135 140
 Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
 145 150 155

<210> 48
 <211> 157
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Clone No. 23

<400> 48
 Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val

```

      1           5           10           15
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
      20           25           30
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
      35           40           45
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
      50           55           60
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
      65           70           75           80
Ser Arg Ile Thr Thr Ala Tyr Ser Gly Pro Val Asn Leu Leu Ser Ala
      85           90           95
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
      100          105          110
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
      115          120          125
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
      130          135          140
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
      145          150          155

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<210> 49

<211> 157

<212> PRT

<213> Artificial Sequence

<220>

<223> Clone No. 24

<400> 49

```

Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
      1           5           10           15
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
      20           25           30
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
      35           40           45
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
      50           55           60
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
      65           70           75           80
Ser Arg Ile Thr His Lys Tyr Pro Gln Pro Val Asn Leu Leu Ser Ala
      85           90           95
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
      100          105          110
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
      115          120          125
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
      130          135          140
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu

```

145

150

155

<210> 50

<211> 157

<212> PRT

<213> Artificial Sequence

<220>

<223> Clone No. 25

<400> 50

Val	Arg	Ser	Ser	Ser	Arg	Thr	Pro	Ser	Asp	Met	Pro	Val	Ala	His	Val
1				5					10					15	
Val	Ala	Asn	Pro	Gln	Ala	Glu	Gly	Gln	Leu	Gln	Trp	Leu	Asn	Arg	Arg
		20					25					30			
Ala	Asn	Ala	Leu	Leu	Ala	Asn	Gly	Val	Glu	Leu	Arg	Asp	Asn	Gln	Leu
	35					40					45				
Val	Val	Pro	Ser	Glu	Gly	Leu	Tyr	Leu	Ile	Tyr	Ser	Gln	Val	Leu	Phe
	50					55				60					
Ser	Gly	Gln	Gly	Cys	Pro	Ser	Thr	His	Val	Leu	Leu	Thr	His	Thr	Ile
65				70					75					80	
Ser	Arg	Ile	Ser	Lys	Thr	Tyr	Ser	His	Pro	Val	Asn	Leu	Leu	Ser	Ala
		85						90			95				
Ile	Arg	Ser	Pro	Cys	Gln	Arg	Glu	Thr	Pro	Glu	Gly	Ala	Glu	Ala	Asn
		100					105					110			
Pro	Trp	Tyr	Glu	Pro	Ile	Tyr	Leu	Gly	Gly	Val	Phe	Gln	Leu	Glu	Pro
	115					120					125				
Gly	Asp	Arg	Leu	Ser	Ala	Glu	Ile	Asn	Arg	Pro	Asp	Tyr	Leu	Asp	Phe
	130					135				140					
Ala	Glu	Ser	Gly	Gln	Val	Tyr	Phe	Gly	Ile	Ile	Ala	Leu			
145				150					155						

<210> 51

<211> 157

<212> PRT

<213> Artificial Sequence

<220>

<223> Clone No. 26

<400> 51

Val	Arg	Ser	Ser	Ser	Arg	Thr	Pro	Ser	Asp	Met	Pro	Val	Ala	His	Val
1				5					10					15	
Val	Ala	Asn	Pro	Gln	Ala	Glu	Gly	Gln	Leu	Gln	Trp	Leu	Asn	Arg	Arg
		20					25					30			
Ala	Asn	Ala	Leu	Leu	Ala	Asn	Gly	Val	Glu	Leu	Arg	Asp	Asn	Gln	Leu
	35					40					45				
Val	Val	Pro	Ser	Glu	Gly	Leu	Tyr	Leu	Ile	Tyr	Ser	Gln	Val	Leu	Phe

50	55	60
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile		
65	70	75
Ser Arg Ile Ser Ser His Tyr Arg Phe Pro Val Asn Leu Leu Ser Ala		
85	90	95
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn		
100	105	110
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro		
115	120	125
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe		
130	135	140
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu		
145	150	155

<210> 52

<211> 157

<212> PRT

<213> Artificial Sequence

<220>

<223> Clone No. 27

<400> 52

Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val		
1	5	10
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg		
20	25	30
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu		
35	40	45
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe		
50	55	60
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile		
65	70	75
Ser Arg Ile Thr Pro Ala Tyr Pro Arg Pro Val Asn Leu Leu Ser Ala		
85	90	95
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn		
100	105	110
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro		
115	120	125
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe		
130	135	140
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu		
145	150	155

<210> 53

<211> 157

<212> PRT

<213> Artificial Sequence

<220>

<223> Clone No. 28

<400> 53

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Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
 1           5           10           15
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
          20           25           30
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
          35           40           45
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
          50           55           60
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
          65           70           75           80
Ser Arg Ile Thr Lys Ser Tyr Ser Lys Pro Val Asn Leu Leu Ser Ala
          85           90           95
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
          100          105          110
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
          115          120          125
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
          130          135          140
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
          145          150          155

```

<210> 54

<211> 157

<212> PRT

<213> Artificial Sequence

<220>

<223> Clone No. 29

<400> 54

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Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
 1           5           10           15
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
          20           25           30
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
          35           40           45
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
          50           55           60
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
          65           70           75           80
Ser Arg Ile Thr Glu Gln Tyr Ser His Pro Val Asn Leu Leu Ser Ala
          85           90           95
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn

```

	100		105		110										
Pro	Trp	Tyr	Glu	Pro	Ile	Tyr	Leu	Gly	Gly	Val	Phe	Gln	Leu	Glu	Pro
	115		120		125										
Gly	Asp	Arg	Leu	Ser	Ala	Glu	Ile	Asn	Arg	Pro	Asp	Tyr	Leu	Asp	Phe
	130		135		140										
Ala	Glu	Ser	Gly	Gln	Val	Tyr	Phe	Gly	Ile	Ile	Ala	Leu			
145			150		155										

<210> 55
 <211> 157
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Clone No. 30

<400> 55															
Val	Arg	Ser	Ser	Ser	Arg	Thr	Pro	Ser	Asp	Met	Pro	Val	Ala	His	Val
1			5						10					15	
Val	Ala	Asn	Pro	Gln	Ala	Glu	Gly	Gln	Leu	Gln	Trp	Leu	Asn	Arg	Arg
		20						25					30		
Ala	Asn	Ala	Leu	Leu	Ala	Asn	Gly	Val	Glu	Leu	Arg	Asp	Asn	Gln	Leu
		35					40					45			
Val	Val	Pro	Ser	Glu	Gly	Leu	Tyr	Leu	Ile	Tyr	Ser	Gln	Val	Leu	Phe
	50					55					60				
Ser	Gly	Gln	Gly	Cys	Pro	Ser	Thr	His	Val	Leu	Leu	Thr	His	Thr	Ile
65					70					75				80	
Ser	Arg	Ile	Thr	Pro	Gly	Tyr	Pro	Ser	Pro	Val	Asn	Leu	Leu	Ser	Ala
			85						90					95	
Ile	Arg	Ser	Pro	Cys	Gln	Arg	Glu	Thr	Pro	Glu	Gly	Ala	Glu	Ala	Asn
		100						105					110		
Pro	Trp	Tyr	Glu	Pro	Ile	Tyr	Leu	Gly	Gly	Val	Phe	Gln	Leu	Glu	Pro
	115						120						125		
Gly	Asp	Arg	Leu	Ser	Ala	Glu	Ile	Asn	Arg	Pro	Asp	Tyr	Leu	Asp	Phe
	130					135						140			
Ala	Glu	Ser	Gly	Gln	Val	Tyr	Phe	Gly	Ile	Ile	Ala	Leu			
145			150		155										

<210> 56
 <211> 157
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Clone No. 31

<400> 56
 Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val

1	5	10	15												
Val	Ala	Asn	Pro	Gln	Ala	Glu	Gly	Gln	Leu	Gln	Trp	Leu	Asn	Arg	Arg
	20		25		30										
Ala	Asn	Ala	Leu	Leu	Ala	Asn	Gly	Val	Glu	Leu	Arg	Asp	Asn	Gln	Leu
	35		40		45										
Val	Val	Pro	Ser	Glu	Gly	Leu	Tyr	Leu	Ile	Tyr	Ser	Gln	Val	Leu	Phe
	50		55		60										
Ser	Gly	Gln	Gly	Cys	Pro	Ser	Thr	His	Val	Leu	Leu	Thr	His	Thr	Ile
65			70		75				80						
Ser	Arg	Ile	Ser	Lys	Thr	Tyr	Ser	His	Pro	Val	Asn	Leu	Leu	Ser	Ala
	85		90		95										
Ile	Arg	Ser	Pro	Cys	Gln	Arg	Glu	Thr	Pro	Glu	Gly	Ala	Glu	Ala	Asn
	100		105		110										
Pro	Trp	Tyr	Glu	Pro	Ile	Tyr	Leu	Gly	Gly	Val	Phe	Gln	Leu	Glu	Pro
	115		120		125										
Gly	Asp	Arg	Leu	Ser	Ala	Glu	Ile	Asn	Arg	Pro	Asp	Tyr	Leu	Asp	Phe
130			135		140										
Ala	Glu	Ser	Gly	Gln	Val	Tyr	Phe	Gly	Ile	Ile	Ala	Leu			
145		150		155											

<210> 57

<211> 157

<212> PRT

<213> Artificial Sequence

<220>

<223> Clone No. 32

<400> 57

Val	Arg	Ser	Ser	Ser	Arg	Thr	Pro	Ser	Asp	Met	Pro	Val	Ala	His	Val
1			5		10		15								
Val	Ala	Asn	Pro	Gln	Ala	Glu	Gly	Gln	Leu	Gln	Trp	Leu	Asn	Arg	Arg
	20		25		30										
Ala	Asn	Ala	Leu	Leu	Ala	Asn	Gly	Val	Glu	Leu	Arg	Asp	Asn	Gln	Leu
	35		40		45										
Val	Val	Pro	Ser	Glu	Gly	Leu	Tyr	Leu	Ile	Tyr	Ser	Gln	Val	Leu	Phe
	50		55		60										
Ser	Gly	Gln	Gly	Cys	Pro	Ser	Thr	His	Val	Leu	Leu	Thr	His	Thr	Ile
65			70		75				80						
Ser	Arg	Ile	Thr	Asp	Arg	Tyr	Ser	Ser	Pro	Val	Asn	Leu	Leu	Ser	Ala
	85		90		95										
Ile	Arg	Ser	Pro	Cys	Gln	Arg	Glu	Thr	Pro	Glu	Gly	Ala	Glu	Ala	Asn
	100		105		110										
Pro	Trp	Tyr	Glu	Pro	Ile	Tyr	Leu	Gly	Gly	Val	Phe	Gln	Leu	Glu	Pro
	115		120		125										
Gly	Asp	Arg	Leu	Ser	Ala	Glu	Ile	Asn	Arg	Pro	Asp	Tyr	Leu	Asp	Phe
130			135		140										
Ala	Glu	Ser	Gly	Gln	Val	Tyr	Phe	Gly	Ile	Ile	Ala	Leu			

145

150

155

<210> 58

<211> 157

<212> PRT

<213> Artificial Sequence

<220>

<223> Clone No. 33

<400> 58

Val	Arg	Ser	Ser	Ser	Arg	Thr	Pro	Ser	Asp	Met	Pro	Val	Ala	His	Val
1				5					10					15	
Val	Ala	Asn	Pro	Gln	Ala	Glu	Gly	Gln	Leu	Gln	Trp	Leu	Asn	Arg	Arg
			20				25						30		
Ala	Asn	Ala	Leu	Leu	Ala	Asn	Gly	Val	Glu	Leu	Arg	Asp	Asn	Gln	Leu
		35					40					45			
Val	Val	Pro	Ser	Glu	Gly	Leu	Tyr	Leu	Ile	Tyr	Ser	Gln	Val	Leu	Phe
	50					55					60				
Ser	Gly	Gln	Gly	Cys	Pro	Ser	Thr	His	Val	Leu	Leu	Thr	His	Thr	Ile
65					70					75				80	
Ser	Arg	Ile	Asn	His	Arg	Tyr	Gln	Asp	Pro	Val	Asn	Leu	Leu	Ser	Ala
			85						90					95	
Ile	Arg	Ser	Pro	Cys	Gln	Arg	Glu	Thr	Pro	Glu	Gly	Ala	Glu	Ala	Asn
			100						105				110		
Pro	Trp	Tyr	Glu	Pro	Ile	Tyr	Leu	Gly	Gly	Val	Phe	Gln	Leu	Glu	Pro
		115					120					125			
Gly	Asp	Arg	Leu	Ser	Ala	Glu	Ile	Asn	Arg	Pro	Asp	Tyr	Leu	Asp	Phe
	130					135					140				
Ala	Glu	Ser	Gly	Gln	Val	Tyr	Phe	Gly	Ile	Ile	Ala	Leu			
145					150						155				

<210> 59

<211> 157

<212> PRT

<213> Artificial Sequence

<220>

<223> Clone No. 34

<400> 59

Val	Arg	Ser	Ser	Ser	Arg	Thr	Pro	Ser	Asp	Met	Pro	Val	Ala	His	Val
1				5					10					15	
Val	Ala	Asn	Pro	Gln	Ala	Glu	Gly	Gln	Leu	Gln	Trp	Leu	Asn	Arg	Arg
			20				25						30		
Ala	Asn	Ala	Leu	Leu	Ala	Asn	Gly	Val	Glu	Leu	Arg	Asp	Asn	Gln	Leu
		35					40					45			
Val	Val	Pro	Ser	Glu	Gly	Leu	Tyr	Leu	Ile	Tyr	Ser	Gln	Val	Leu	Phe

50		55		60
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile				
65		70		75
Ser Arg Ile Ser Ala Asp Tyr Pro His Pro Val Asn Leu Leu Ser Ala				
	85		90	95
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn				
	100		105	110
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro				
	115		120	125
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe				
	130		135	140
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu				
145		150		155

<210> 60

<211> 471

<212> DNA

<213> Artificial Sequence

<220>

<223> Clone No. 1

<400> 60

gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
1 5 10 15
gta gca aac cct caa gct gag ggg cag ctc cag tgg cag aac agg tgg 96
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Gln Asn Arg Trp
20 25 30
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
35 40 45
gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
50 55 60
tgc ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
65 70 75 80
agc cgc atc gcc gtc tcc tac cag acc ccc gtc aac ctc ctc tct gcc 288
Ser Arg Ile Ala Val Ser Tyr Gln Thr Pro Val Asn Leu Leu Ser Ala
85 90 95
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
100 105 110
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
115 120 125
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432

Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
 130 135 140
 gcc gag tct ggg cag gtc tac ttt ggg atc att gcc ctg
 Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
 145 150 155

<210> 61
 <211> 471
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Clone No. 2

<400> 61
 gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
 Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
 1 5 10 15
 gta gca aac cct caa gct gag ggg cag ctc cag tgg acg aac ggg tac 96
 Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Thr Asn Gly Tyr
 20 25 30
 gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
 Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
 35 40 45
 gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
 Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
 50 55 60
 tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
 Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
 65 70 75 80
 agc cgc atc gcc gtc tcc tac cag acc ccc gtc aac ctc ctc tct gcc 288
 Ser Arg Ile Ala Val Ser Tyr Gln Thr Pro Val Asn Leu Leu Ser Ala
 85 90 95
 atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
 Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
 100 105 110
 ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
 Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
 115 120 125
 ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
 Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
 130 135 140
 gcc gag tct ggg cag gtc tac ttt ggg atc att gcc ctg
 Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
 145 150 155

<210> 62
 <211> 471

<212> DNA

<213> Artificial Sequence

<220>

<223> Clone No. 3

<400> 62

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gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
  1           5           10          15
gta gca aac cct caa gct gag ggg cag ctc cag tgg tcc aac agc gac 96
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Ser Asp
      20           25           30
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
      35           40           45
gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
      50           55           60
tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
      65           70           75           80
agc cgc atc gcc gtc tcc tac cag acc ccc gtc aac ctc ctc tct gcc 288
Ser Arg Ile Ala Val Ser Tyr Gln Thr Pro Val Asn Leu Leu Ser Ala
      85           90           95
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
      100          105          110
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
      115          120          125
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
      130          135          140
gcc gcc cgc ggg cag gtc tac ttt ggg atc att gcc ctg
Ala Ala Arg Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
      145          150          155

```

<210> 63

<211> 471

<212> DNA

<213> Artificial Sequence

<220>

<223> Clone No. 4

<400> 63

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gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48

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Val	Arg	Ser	Ser	Ser	Arg	Thr	Pro	Ser	Asp	Met	Pro	Val	Ala	His	Val
1				5					10					15	
gta	gca	aac	cct	caa	gct	gag	ggg	cag	ctc	cag	tgg	aag	aac	gcc	ggc
Val	Ala	Asn	Pro	Gln	Ala	Glu	Gly	Gln	Leu	Gln	Trp	Lys	Asn	Ala	Gly
		20					25					30			
gcc	aat	gcc	ctc	ctg	gcc	aat	ggc	gtg	gag	ctg	aga	gat	aac	cag	ctg
Ala	Asn	Ala	Leu	Leu	Ala	Asn	Gly	Val	Glu	Leu	Arg	Asp	Asn	Gln	Leu
		35					40				45				
gtg	gtg	cca	tca	gag	ggc	ctg	tac	ctc	atc	tac	tcc	cag	gtc	ctc	ttc
Val	Val	Pro	Ser	Glu	Gly	Leu	Tyr	Leu	Ile	Tyr	Ser	Gln	Val	Leu	Phe
	50					55				60					
tgc	ggc	caa	ggc	tgc	ccc	tcc	acc	cat	gtg	ctc	ctc	acc	cac	acc	atc
Ser	Gly	Gln	Gly	Cys	Pro	Ser	Thr	His	Val	Leu	Leu	Thr	His	Thr	Ile
	65			70					75			80			
agc	cgc	atc	gcc	gtc	tcc	tac	cag	acc	ccc	gtc	aac	ctc	ctc	tct	gcc
Ser	Arg	Ile	Ala	Val	Ser	Tyr	Gln	Thr	Pro	Val	Asn	Leu	Leu	Ser	Ala
		85					90				95				
atc	cgc	agc	ccc	tgc	cag	agg	gag	acc	cca	gag	ggg	gct	gag	gcc	aac
Ile	Arg	Ser	Pro	Cys	Gln	Arg	Glu	Thr	Pro	Glu	Gly	Ala	Glu	Ala	Asn
		100					105				110				
ccc	tgg	tat	gag	ccc	atc	tat	ctg	gga	ggg	gtc	ttc	cag	ctg	gag	cgc
Pro	Trp	Tyr	Glu	Pro	Ile	Tyr	Leu	Gly	Gly	Val	Phe	Gln	Leu	Glu	Pro
	115					120				125					
ggt	gac	cga	ctc	agc	gct	gag	atc	aat	cgg	ccc	gac	tat	ctc	gac	ttt
Gly	Asp	Arg	Leu	Ser	Ala	Glu	Ile	Asn	Arg	Pro	Asp	Tyr	Leu	Asp	Phe
	130				135				140						
gct	tgc	acg	ggg	cag	gtc	tac	ttt	ggg	atc	att	gcc	ctg			
Ala	Ser	Thr	Gly	Gln	Val	Tyr	Phe	Gly	Ile	Ile	Ala	Leu			
145				150				155							

<210> 64

<211> 471

<212> DNA

<213> Artificial Sequence

<220>

<223> Clone No. 16

<400> 64

gtc	aga	tca	tct	tct	cga	acc	cgc	agt	gac	atg	cct	gta	gcc	cat	gtt
Val	Arg	Ser	Ser	Ser	Arg	Thr	Pro	Ser	Asp	Met	Pro	Val	Ala	His	Val
1				5					10					15	
gta	gca	aac	cct	caa	gct	gag	ggg	cag	ctc	cag	tgg	ctg	aac	cgc	cgg
Val	Ala	Asn	Pro	Gln	Ala	Glu	Gly	Gln	Leu	Gln	Trp	Leu	Asn	Arg	Arg
		20					25				30				
gcc	aat	gcc	ctc	ctg	gcc	aat	ggc	gtg	gag	ctg	aga	gat	aac	cag	ctg
Ala	Asn	Ala	Leu	Leu	Ala	Asn	Gly	Val	Glu	Leu	Arg	Asp	Asn	Gln	Leu
		35					40				45				

```

gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
  50          55          60
tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
  65          70          75          80
agc cgc atc agc tcg acc tac ccc gac ccc gtc aac ctc ctc tct gcc 288
Ser Arg Ile Ser Ser Thr Tyr Pro Asp Pro Val Asn Leu Leu Ser Ala
          85          90          95
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
          100          105          110
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
          115          120          125
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
          130          135          140
gcc gag tct ggg cag gtc tac ttt ggg atc att gcc ctg
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
145          150          155

```

<210> 65

<211> 471

<212> DNA

<213> Artificial Sequence

<220>

<223> Clone No. 17

<400> 65

```

gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
  1          5          10          15
gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
          20          25          30
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
          35          40          45
gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
          50          55          60
tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
  65          70          75          80
agc cgc atc tcg aag acc tac acc cac ccc gtc aac ctc ctc tct gcc 288
Ser Arg Ile Ser Lys Thr Tyr Thr His Pro Val Asn Leu Leu Ser Ala

```

```

      85              90              95
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
      100              105              110
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
      115              120              125
ggg gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
      130              135              140
gcc gag tct ggg cag gtc tac ttt ggg atc att gcc ctg
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
      145              150              155

```

<210> 66

<211> 471

<212> DNA

<213> Artificial Sequence

<220>

<223> Clone No. 18

<400> 66

```

gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
      1              5              10              15
gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
      20              25              30
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
      35              40              45
gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
      50              55              60
tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
      65              70              75              80
agc cgc atc tcc ccc ctg tac ccc aag ccc gtc aac ctc ctc tct gcc 288
Ser Arg Ile Ser Pro Leu Tyr Pro Lys Pro Val Asn Leu Leu Ser Ala
      85              90              95
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
      100              105              110
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
      115              120              125
ggg gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432

```

Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
 130 135 140
 gcc gag tct ggg cag gtc tac ttt ggg atc att gcc ctg
 Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
 145 150 155

<210> 67

<211> 471

<212> DNA

<213> Artificial Sequence

<220>

<223> Clone No. 19

<400> 67

gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
 Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
 1 5 10 15
 gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
 Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
 20 25 30
 gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
 Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
 35 40 45
 gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
 Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
 50 55 60
 tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
 Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
 65 70 75 80
 agc cgc atc tcc acc aac tac aac ggc ccc gtc aac ctc ctc tct gcc 288
 Ser Arg Ile Ser Tyr Asn Tyr Asn Gly Pro Val Asn Leu Leu Ser Ala
 85 90 95
 atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
 Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
 100 105 110
 ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
 Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
 115 120 125
 ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
 Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
 130 135 140
 gcc gag tct ggg cag gtc tac ttt ggg atc att gcc ctg
 Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
 145 150 155

<210> 68

<211> 471

<212> DNA

<213> Artificial Sequence

<220>

<223> Clone No. 20

<400> 68

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gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
  1           5           10          15
gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
      20           25           30
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
      35           40           45
gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
      50           55           60
tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
      65           70           75           80
agc cgc atc tcc agc gcg tac gcg agc ccc gtc aac ctc ctc tct gcc 288
Ser Arg Ile Ser Ser Ala Tyr Ala Ser Pro Val Asn Leu Leu Ser Ala
      85           90           95
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
      100          105          110
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
      115          120          125
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
      130          135          140
gcc gag tct ggg cag gtc tac ttt ggg atc att gcc ctg
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
      145          150          155

```

<210> 69

<211> 471

<212> DNA

<213> Artificial Sequence

<220>

<223> Clone No. 21

<400> 69

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gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48

```

```

Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
 1           5           10           15
gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
          20           25           30
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
          35           40           45
gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
          50           55           60
tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
          65           70           75           80
agc cgc atc tcg tcg gcc tac ggg ccg ccc gtc aac ctc ctc tct gcc 288
Ser Arg Ile Thr Ser Ala Tyr Gly Pro Pro Val Asn Leu Leu Ser Ala
          85           90           95
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
          100           105           110
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
          115           120           125
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
          130           135           140
gcc gag tct ggg cag gtc tac ttt ggg atc att gcc ctg
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
          145           150           155

```

<210> 70

<211> 471

<212> DNA

<213> Artificial Sequence

<220>

<223> Clone No. 22

<400> 70

```

gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
 1           5           10           15
gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
          20           25           30
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
          35           40           45

```

```

gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
  50              55              60
tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
  65              70              75              80
agc cgc atc tcg cgc gtg tac acc gcc ccc gtc aac ctc ctc tct gcc 288
Ser Arg Ile Ser Arg Val Tyr Thr Ala Pro Val Asn Leu Leu Ser Ala
              85              90              95
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
              100              105              110
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
              115              120              125
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
              130              135              140
gcc gag tct ggg cag gtc tac ttt ggg atc att gcc ctg
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
145              150              155

```

<210> 71

<211> 471

<212> DNA

<213> Artificial Sequence

<220>

<223> Clone No. 23

<400> 71

```

gtc aga tca tct tct cga acc cgg agt gac atg cct gta gcc cat gtt 48
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
  1              5              10              15
gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
              20              25              30
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
              35              40              45
gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
  50              55              60
tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
  65              70              75              80
agc cgc atc acg acg gcg tac agc ggc ccc gtc aac ctc ctc tct gcc 288
Ser Arg Ile Thr Thr Ala Tyr Ser Gly Pro Val Asn Leu Leu Ser Ala

```

	85	90	95	
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac	336			
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn				
100	105	110		
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg	384			
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro				
115	120	125		
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt	432			
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe				
130	135	140		
gcc gag tct ggg cag gtc tac ttt ggg atc att gcc ctg				
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu				
145	150	155		

<210> 72

<211> 471

<212> DNA

<213> Artificial Sequence

<220>

<223> Clone No. 24

<400> 72

gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt	48
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val	
1	5
gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg	96
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg	
20	25
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg	144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu	
35	40
gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc	192
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe	
50	55
tgc ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc	240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile	
65	70
agc cgc atc acg cac aag tac ccg cag ccc gtc aac ctc ctc tct gcc	288
Ser Arg Ile Thr His Lys Tyr Pro Gln Pro Val Asn Leu Leu Ser Ala	
85	90
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac	336
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn	
100	105
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg	384
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro	
115	120
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt	432

Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
 130 135 140

gcc gag tct ggg cag gtc tac ttt ggg atc att gcc ctg
 Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
 145 150 155

<210> 73

<211> 471

<212> DNA

<213> Artificial Sequence

<220>

<223> Clone No. 25

<400> 73

gtc aga tca tct tct cga acc cgg agt gac atg cct gta gcc cat gtt 48
 Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
 1 5 10 15
 gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
 Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
 20 25 30
 gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
 Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
 35 40 45
 gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
 Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
 50 55 60
 tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
 Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
 65 70 75 80
 agc cgc atc agc aag acc tac tcc cac ccc gtc aac ctc ctc tct gcc 288
 Ser Arg Ile Ser Lys Thr Tyr Ser His Pro Val Asn Leu Leu Ser Ala
 85 90 95
 atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
 Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
 100 105 110
 ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
 Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
 115 120 125
 ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
 Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
 130 135 140
 gcc gag tct ggg cag gtc tac ttt ggg atc att gcc ctg
 Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
 145 150 155

<210> 74

<211> 471

<212> DNA

<213> Artificial Sequence

<220>

<223> Clone No. 26

<400> 74

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gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
  1           5           10          15
gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
      20           25           30
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
      35           40           45
gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
      50           55           60
tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
      65           70           75           80
agc cgc atc tcg tcc cac tac agg ttc ccc gtc aac ctc ctc tct gcc 288
Ser Arg Ile Ser Ser His Tyr Arg Phe Pro Val Asn Leu Leu Ser Ala
      85           90           95
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
      100          105          110
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
      115          120          125
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
      130          135          140
gcc gag tct ggg cag gtc tac ttt ggg atc att gcc ctg
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
      145          150          155

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<210> 75

<211> 471

<212> DNA

<213> Artificial Sequence

<220>

<223> Clone No. 27

<400> 75

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gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48

```

Val	Arg	Ser	Ser	Ser	Arg	Thr	Pro	Ser	Asp	Met	Pro	Val	Ala	His	Val
1				5					10					15	
gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96															
Val	Ala	Asn	Pro	Gln	Ala	Glu	Gly	Gln	Leu	Gln	Trp	Leu	Asn	Arg	Arg
		20					25					30			
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144															
Ala	Asn	Ala	Leu	Leu	Ala	Asn	Gly	Val	Glu	Leu	Arg	Asp	Asn	Gln	Leu
		35				40					45				
gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192															
Val	Val	Pro	Ser	Glu	Gly	Leu	Tyr	Leu	Ile	Tyr	Ser	Gln	Val	Leu	Phe
	50					55				60					
tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240															
Ser	Gly	Gln	Gly	Cys	Pro	Ser	Thr	His	Val	Leu	Leu	Thr	His	Thr	Ile
	65			70				75			80				
agc cgc atc acc ccc gcc tac ccc cgg ccc gtc aac ctc ctc tct gcc 288															
Ser	Arg	Ile	Thr	Pro	Ala	Tyr	Pro	Arg	Pro	Val	Asn	Leu	Leu	Ser	Ala
			85				90				95				
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336															
Ile	Arg	Ser	Pro	Cys	Gln	Arg	Glu	Thr	Pro	Glu	Gly	Ala	Glu	Ala	Asn
		100					105				110				
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384															
Pro	Trp	Tyr	Glu	Pro	Ile	Tyr	Leu	Gly	Gly	Val	Phe	Gln	Leu	Glu	Pro
		115				120				125					
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432															
Gly	Asp	Arg	Leu	Ser	Ala	Glu	Ile	Asn	Arg	Pro	Asp	Tyr	Leu	Asp	Phe
	130				135			140							
gcc gag tct ggg cag gtc tac ttt ggg atc att gcc ctg															
Ala	Glu	Ser	Gly	Gln	Val	Tyr	Phe	Gly	Ile	Ile	Ala	Leu			
145				150				155							

<210> 76

<211> 471

<212> DNA

<213> Artificial Sequence

<220>

<223> Clone No. 28

<400> 76

gtc	aga	tca	tct	tct	cga	acc	cgg	agt	gac	atg	cct	gta	gcc	cat	gtt
Val	Arg	Ser	Ser	Ser	Arg	Thr	Pro	Ser	Asp	Met	Pro	Val	Ala	His	Val
1				5				10					15		
gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96															
Val	Ala	Asn	Pro	Gln	Ala	Glu	Gly	Gln	Leu	Gln	Trp	Leu	Asn	Arg	Arg
		20					25				30				
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144															
Ala	Asn	Ala	Leu	Leu	Ala	Asn	Gly	Val	Glu	Leu	Arg	Asp	Asn	Gln	Leu
		35				40					45				

```

gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
    50                55                60
tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
    65                70                75                80
agc cgc atc acg aag tcc tac tcc aag ccc gtc aac ctc ctc tct gcc 288
Ser Arg Ile Thr Lys Ser Tyr Ser Lys Pro Val Asn Leu Leu Ser Ala
                85                90                95
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
                100                105                110
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag cgg 384
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
                115                120                125
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
                130                135                140
gcc gag tct ggg cag gtc tac ttt ggg atc att gcc ctg
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
145                150                155

```

<210> 77

<211> 471

<212> DNA

<213> Artificial Sequence

<220>

<223> Clone No. 29

<400> 77

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gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
    1                5                10                15
gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
                20                25                30
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
                35                40                45
gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
    50                55                60
tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
    65                70                75                80
agc cgc atc acc gag cag tac tcc cac ccc gtc aac ctc ctc tct gcc 288
Ser Arg Ile Thr Glu Gln Tyr Ser His Pro Val Asn Leu Leu Ser Ala

```


	85		90		95	
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac	336					
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn						
	100		105		110	
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg	384					
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro						
	115		120		125	
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt	432					
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe						
	130		135		140	
gcc gag tct ggg cag gtc tac ttt ggg atc att gcc ctg						
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu						
145	150		155			

<210> 78

<211> 471

<212> DNA

<213> Artificial Sequence

<220>

<223> Clone No. 30

<400> 78

gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt	48
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val	
1	5
gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg	96
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg	
20	25
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg	144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu	
35	40
gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc	192
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe	
50	55
tgc ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc	240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile	
65	70
agc cgc atc acg ccc cag tac ccg tcc ccc gtc aac ctc ctc tct gcc	288
Ser Arg Ile Thr Pro Gly Tyr Pro Ser Pro Val Asn Leu Leu Ser Ala	
85	90
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac	336
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn	
100	105
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg	384
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro	
115	120
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt	432

Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
 130 135 140
 gcc gag tct ggg cag gtc tac ttt ggg atc att gcc ctg
 Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
 145 150 155

<210> 79

<211> 471

<212> DNA

<213> Artificial Sequence

<220>

<223> Clone No. 31

<400> 79

gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
 Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
 1 5 10 15
 gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
 Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
 20 25 30
 gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
 Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
 35 40 45
 gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
 Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
 50 55 60
 tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
 Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
 65 70 75 80
 agc cgc atc agc aag acc tac tcc cac ccc gtc aac ctc ctc tct gcc 288
 Ser Arg Ile Ser Lys Thr Tyr Ser His Pro Val Asn Leu Leu Ser Ala
 85 90 95
 atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
 Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
 100 105 110
 ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
 Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
 115 120 125
 ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
 Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
 130 135 140
 gcc gag tct ggg cag gtc tac ttt ggg atc att gcc ctg
 Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
 145 150 155

<210> 80

<211> 471

<212> DNA

<213> Artificial Sequence

<220>

<223> Clone No. 32

<400> 80

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gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
  1           5           10          15
gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
      20           25           30
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
      35           40           45
gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
      50           55           60
tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
      65           70           75           80
agc cgc atc acg gac cgc tac agc agc ccc gtc aac ctc ctc tct gcc 288
Ser Arg Ile Thr Asp Arg Tyr Ser Ser Pro Val Asn Leu Leu Ser Ala
      85           90           95
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
      100          105          110
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
      115          120          125
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
      130          135          140
gcc gag tct ggg cag gtc tac ttt ggg atc att gcc ctg
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
145          150          155

```

<210> 81

<211> 471

<212> DNA

<213> Artificial Sequence

<220>

<223> Clone No. 33

<400> 81

```

gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48

```

```

Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
 1           5           10           15
gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
      20           25           30
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
      35           40           45
gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
      50           55           60
tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
      65           70           75           80
agc cgc atc aac cac agg tac cag gac ccc gtc aac ctc ctc tct gcc 288
Ser Arg Ile Asn His Arg Tyr Gln Asp Pro Val Asn Leu Leu Ser Ala
      85           90           95
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
      100           105           110
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag cgg 384
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
      115           120           125
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
      130           135           140
gcc gag tct ggg cag gtc tac ttt ggg atc att gcc ctg
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
145           150           155

```

<210> 82

<211> 471

<212> DNA

<213> Artificial Sequence

<220>

<223> Clone No. 34

<400> 82

```

gtc aga tca tct tct cga acc cgg agt gac atg cct gta gcc cat gtt 48
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
 1           5           10           15
gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
      20           25           30
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
      35           40           45

```

```

gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
    50          55          60
tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
    65          70          75          80
agc cgc atc tcc gcg gac tac ccc cac ccc gtc aac ctc ctc tct gcc 288
Ser Arg Ile Ser Ala Asp Tyr Pro His Pro Val Asn Leu Leu Ser Ala
          85          90          95
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
          100          105          110
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
          115          120          125
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
          130          135          140
gcc gag tct ggg cag gtc tac ttt ggg atc att gcc ctg
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
145          150          155

```

<210> 83

<211> 87

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide as a primer having NNS sequences (for mutating the amino acid residues at the 29,31 and 32)

<400> 83

```

gacatgcctg tagcccatgt tgtagcaaac cctcaagctg aggggcagct ccagtggns 60
aacnnsnsg ccaatgccct cctggcc

```

<210> 84

<211> 57

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide as a primer having NNS sequences (for mutating the amino acid residues at the 145 to 147)

<400> 84

```

cagggcaatg atcccaaagt agacctgcc snnsnnsna aagtcgagat agtcggg

```

<210> 85

<211> 65

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide as a 5'-terminal linker to insert the PCR-amplified DNA into a phagemid vector

<400> 85

cccagccggc catggcgtc agatcatctt ctggaacccc gagtgacatg cctgtagccc 60
atgtt

<210> 86

<211> 62

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide as a 3'-terminal linker to insert the PCR-amplified DNA into a phagemid vector

<400> 86

ggcaccggcg cacctgcggc cgcagatcca ccaccaccca gggcaatgat cccaaagtag 60
ac

<210> 87

<211> 87

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide as an anti-sense primer having NNS sequences (for mutating amino acid residues at the position 84-89)

<400> 87

ctggcagggg ctgcgatgg cagagaggag attgacgggs nnsnnsnnsn nsnnsnngat 60
gcggctgatg gtgtgggtga ggagcac

<210> 88

<211> 218

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide as a 3'-terminal linker to insert the PCR-amplified DNA into a phagemid vector

<400> 88

ggcaccggcg cacctgcggc cgcagatcca ccaccaccca gggcaatgat cccaaagtag 60

acctgcccag actcggcaaa gtcgagatag tcgggcccgat tgatctcagc gctgagtogg 120
tcaccgggt ccagctggaa gacccctccc agatagatgg gtcatacca ggggttggcc 180
tcagccccct ctgggtctc cctctggcag gggctgog

<210> 89

<211> 38

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide as a 5'-terminal linker to insert the PCR-amplified DNA into an expression vector

<400> 89

tatacatatg gtcagatcat cttctogaac cccgagtg

<210> 90

<211> 35

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide as a 3'-terminal linker to insert the PCR-amplified DNA into an expression vector

<400> 90

aaggatccct acagggcaat gatcccaaag tagac